

REMARKS/ARGUMENT

Claims 30, 33, 34 and 36-37 are allowed.

Objected to Claims 1, 3, 6, 9-11, 14, 38, 39, 42, 46 and 53 have been amended per Examiner's recommendation. Accordingly, Claims 1, 3, 6, 9-11, 14, 38, 39, 42, 46 and 53 stand allowable.

Claims 45 and 19-23 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Onggosanusi et al (US 7,181,167) in view of Becker (US 2004/0139140). Applicants respectfully traverse this rejection, as set forth below.

An obviousness inquiry is decided as a matter of law, based on four general factual inquiries as explained in *Graham v. John Deere Co.*, 383 U.S. 1, 17-18 (1966), and reaffirmed in *KSR International, Inc. v. Teleflex, Inc.*, 550 U.S. 398, 406-07 (2007). The patent examiner is responsible for marshalling the references whose teachings are most relevant to the claimed invention, and evaluating the claimed invention against these teachings, from the viewpoint of a person of ordinary skill in the field of invention. See *Graham*, supra; *In re Kubin*, 561 F.3d 1351, 1355 (Fed. Cir. 2009); see generally *In re Oetiker*, 977 F.2d 1443, 1445-47 (Fed. Cir. 1992).

In proceedings before the Patent and Trademark Office, "the Examiner bears the burden of establishing a prima facie case of obviousness based upon the prior art". *In re Fritch*, 23 USPQ2d 1780, 1783 (Fed. Cir. 1992) (citing *In re Piasecki*, 745 F.2d 1468, 1471-72, 223 USPQ 785, 787-88 (Fed. Cir. 1984). "The Examiner can satisfy this burden **only by showing some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in the art would lead that individual to combine the relevant teachings of the references**", *In re Fritch*, 23 USPQ2d 1780, 1783 (Fed. Cir. 1992)(citing *In re Fine*, 837 F.2d

1071, 1074, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988)(citing *In re Lahu*, 747 F.2d 703, 705, 223 USPQ 1257, 1258 (Fed. Cir. 1988)).

Similarly, although couched in terms of combining teachings found in the prior art, the same inquiry must be carried out in the context of a purported obvious "modification" of the prior art. **The mere fact that the prior art may be modified in the manner suggested by the Examiner does not make the modification obvious unless the prior art suggested the desirability of the modification.** *In re Gordon*, 733 F.2d at 902, 221 USPQ at 1127. Moreover, it is impermissible to use the claimed invention as an instruction manual or "template" to piece together the teachings of the prior art so that the claimed invention is rendered obvious. *In re Gorman*, 933 F.2d 982, 987, 18 USPQ2d 1885, 1888 (Fed.Cir.1991). See also *Interconnect Planning Corp. v. Feil*, 774 F.2d 1132, 1138, 227 USPQ 543, 547 (Fed.Cir.1985).

Applicant respectfully further points out that, "all words in a claim must be considered in judging the patentability of that claim against the prior art." *In re Wilson*, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970).

Independent Claim 45, as amended, requires and positively recites, a method for interference-resistance for multiple users using closed-loop transmit diversity (CLTD) at a receiver comprising: "receiving a signal", "**calculating a channel estimate from the received signal**", "computing a CLTD weighting vector **based on the channel estimate**", "providing the CLTD weighting vector to a transmitter" and "using the CLTD weighting vector, a channel estimate, and spreading codes for each user to suppress interference by: equalizing the received signal; despreading the equalized received signal by; and coherent combining the despread equalized received signal, wherein equalizing the received signal is expressed as:

$$z_{ZF} = (H^H H)^{-1} H^H r, \quad Q \geq P$$

where r is the received signal, H is the channel estimate, and Q is the number of received antennas".

In contrast, Applicants fails to find where Onggosanusi teaches or suggests, “calculating a channel estimate from the received signal” and “computing a CLTD weighting vector based on the channel estimate”. Examiner relies upon Becker as teaching “a zero forcing solution expressed as (equation 15; [0045])(OA, page 4, lines 20-21), missing in Onggosanusi, but even if, arguendo, Becker teaches what is suggested by Examiner, Becker further fails to teach or suggest the above high-lighted deficiencies of Onggosanusi. As such, any combination of Becker and Onggosanusi fails to teach or suggest ALL of the limitations of Claim 45. Moreover, Examiner has failed to establish that one having ordinary skill in the art at the time of the invention would have been motivated to combine Onggosanusi and Becker in the manner suggested by Examiner and then to modify the resulting combined teaching such that it includes the above high-lighted steps, without the improper hind sight provided by Applicants’ specification. Accordingly, the 35 U.S.C. 103(a) rejection of Claim 45 is improper and must be withdrawn.

Claims 19-23 stand allowable as depending from allowable claims and including further limitations not taught or suggested by the references of record.

Claim 19 further defines the method of claim 45, wherein the despreading applies the spreading codes from each user to the equalized received signal. Claim 19 depends from Claim 45 and stands allowable for the same reasons set forth above in support of the allowability of Claim 45.

Claim 20 further defines the method of claim 19, wherein the despreading produces a symbol stream for each user. Claim 20 depends from Claim 19 and stands allowable for the same reasons set forth above in support of the allowability of Claim 19.

Claim 21 further defines the method of claim 45, wherein the coherent combining applies the CLTD weighting vector to despread symbol intervals. Claim 21 depends from Claim 45 and stands allowable for the same reasons set forth above in support of the allowability of Claim 45.

Claim 22 further defines the method of claim 21, wherein the coherent combining further applies the channel estimate and spreading codes from each user. Claim 22 depends from Claim 21 and stands allowable for the same reasons set forth above in support of the allowability of Claim 21.

Claim 23 further defines the method of claim 45, wherein an equalizer to perform the equalizing is implemented as a bank of $P \times Q$ filters, wherein P is the number of transmit antennas and Q is the number of receive antennas. Claim 23 depends from Claim 45 and stands allowable for the same reasons set forth above in support of the allowability of Claim 45.

Applicants respectfully request withdrawal of the rejections and allowance of the application as the earliest possible date.

Respectfully submitted,



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